

Claims

1. An ophthalmic drug delivery system comprising administering a polymer micelle incorporating a drug therein to deliver the drug to a posterior tissue of eyeball efficiently.
2. The drug delivery system according to claim 1 wherein the polymer micelle is formed with a block copolymer comprising a hydrophilic polymer chain as a shell and a hydrophobic polymer chain as a core.
3. The drug delivery system according to claim 2 wherein the hydrophilic polymer chain is polyoxyethylene or polyethylene glycol.
4. The drug delivery system according to claim 2 wherein the hydrophobic polymer chain is polylactone.
5. The drug delivery system according to claim 1 wherein the polymer micelle is formed with a block copolymer comprising a hydrophilic polymer chain as a shell and a charged polymer chain as a core.
6. The drug delivery system according to claim 5 wherein the charged polymer chain is a polyamine, a polycarboxylic acid or a polypeptide.
7. The drug delivery system according to claim 1 wherein the polymer micelle is a core-shell type polyion complex micelle comprising a hydrophilic polymer chain as a shell, and

a charged polymer chain and a polymer electrolyte in a core.

8. The drug delivery system according to claim 7 wherein the charged polymer chain is an anionic polymer chain.

9. The drug delivery system according to claim 8 wherein the anionic polymer chain is polyaspartic acid.

10. The drug delivery system according to claim 7 wherein the charged polymer chain is a polyamine or a polycarboxylic acid.

11. The drug delivery system according to claim 7 wherein the polymer electrolyte is a polypeptide.

12. The drug delivery system according to claim 11 wherein the polymer electrolyte is polylysine.

13. The drug delivery system according to any one of claims 1 to 12 wherein the polymer micelle has a particle diameter of between 10 nm to 100 nm.

14. The drug delivery system according to any one of claims 1 to 12 wherein the administration method is intravenous injection.

15. The drug delivery system according to any one of claims 1 to 14 wherein the posterior tissue of eyeball is choroid or retina.

16. The drug delivery system according to claim 15 wherein new vessels are generated in the posterior tissue of eyeball.

17. The drug delivery system according to any one of

claims 1 to 16 wherein the drug is a photosensitive substance.

18. The drug delivery system according to claim 17 wherein the photosensitive substance is used for a photodynamic therapy.

19. The drug delivery system according to claim 18 which is used for occlusion of choroidal new vessels.

20. The drug delivery system according to claim 18 which is used in a therapy for age-related macular degeneration.

21. The drug delivery system according to claim 18 wherein the photosensitive substance is a porphyrin derivative.

22. The drug delivery system according to claim 18 wherein the porphyrin derivative is a dendrimer-type porphyrin.

23. A therapeutic agent for age-related macular degeneration which comprises a photosensitive substance incorporated into a polymer micelle as an active ingredient, and which occludes choroidal new vessels by a photodynamic therapy.

24. The therapeutic agent for age-related macular degeneration according to claim 23 wherein the photosensitive substance is a porphyrin derivative.

25. The therapeutic agent for age-related macular degeneration according to claim 23 wherein the porphyrin derivative is a dendrimer-type porphyrin.